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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,566	10/03/2003	Jalal Hallak	MAT-0003	3587

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EXAMINER

WILLOUGHBY, TERRENCE RONIQUÉ

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

82

Office Action Summary	Application No. 10/678,566	Applicant(s) HALLAK ET AL.	
	Examiner Terrence R. Willoughby	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/3/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 7 is/are rejected.
- 7) ☒ Claim(s) 1,2,4,6, and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/12/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1,4 and 7 are objected to because of the following informalities:

Regarding claims 1, 3, 4 and 7, the phrase " a ballast resistor (R1A) is mislabeled and should be rewritten as (RA1) as referred to in the drawing

Figures 1 and 3.

Appropriate correction is required.

2. Claim 1 is objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1 recites the limitation "pre-definable tolerances". It is unclear, and not understood what the pre-definable tolerances are?

3. Claim 2 is objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2 recites the limitation "at least essentially" make the claimed very unclear, and not understood what is essentially?

4. Claims 2 and 6 are objected to as being indefinite for failing to particular point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 2 and 6 recites the limitation "the main semiconductor switch (SW1)" in both of the claims. There is insufficient antecedent basis for this limitation in the claim.

Drawings

Art Unit: 2836

5. The drawings are objected to because of the use of identifiers, such as "UWE", "H1A". These should be replaced with more descriptive and accepted language, such as "monitoring unit" and "auxiliary switch". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,2,4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duffy (US 5,737,160) ~~and further~~ in view of Merrill (US 5,969,514)

Regarding claim 1, Duffy discloses (Fig. 10) a power supply (12) in which a feed voltage (U_s) is routed through at least one longitudinal branch to at one output (14), the at least one branch having a disconnect fuse formed as a controlled semiconductor switch (6), wherein at least one series circuit of an auxiliary semiconductor switch (4), and a PTC (2), is connected in parallel to the semiconductor switch (6) and in the event of an overcurrent (column 10, ll. 25-31) absorbs a substantial portion of the overload current in the branch (column 11, ll. 51-column 12, ll. 1-10). Duffy discloses the (PTC) device element is formed as a composite carbon conductive material (column 2, ll. 16-21). Duffy does not disclose the claimed said monitoring unit (UWE) being set up to supply a disconnect signal (s1) to the semiconductor switch when there are changes in voltage or current beyond pre-definable tolerances.

However, Merrill discloses (Fig. 4) a monitoring unit (401) that measures the output voltage levels at the output nodes of a switching array including a plurality of switches in parallel and a control unit that sends a control signal to activate or inactivate any one of the switches delivering power to the load. (See Abstract). It would have been obvious to those skilled in the art at the time the invention was made to provide a monitoring unit taught by Merrill to the power

Art Unit: 2836

supply device of Duffy to disconnect any one of the semiconductor switches in order to regulate the flow of power to the load.

Regarding claim 2, Duffy in view of Merrill discloses the claimed said power supply as described in claim 1. Merrill discloses the monitoring unit (401). Duffy discloses the auxiliary semiconductor switch (4) at least essentially disconnected during normal operation, but to switch it on in the event of an overload while simultaneously disconnecting the main semiconductor switch ((6), and column 11, ll. 51-column 12, ll. 1-10).

Regarding claim 4, Duffy in view of Merrill discloses the claimed said power supply as described in claim 1, wherein the pre-definable short-circuit current (I_{K1}) of the branch is essentially determined by the ballast resistor (R1A) and the feed voltage (U_s), so that $R1A \approx U_s / I_{K1}$. It is well known to those skilled in the art at the time the invention was made that the electrical current flowing through a resistor is proportional to the voltage source, known as Ohm's Law.

Regarding claim 7, Duffy in view of Merrill discloses the claimed said power supply as described in claim 1. Duffy discloses a (PTC) is formed as a composite carbon resistor (column 2, ll. 16-21).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duffy (US 5,737,160) and further view of Merrill (US 5,969,514) as applied to claim 1 above, and further in view of Thomas (US 5,805,393).

Regarding claim 5, Duffy in view of Merrill discloses the claimed said power supply as described in claim 1, however both of the references does not

Art Unit: 2836

disclose the claimed said semiconductor switches (SW1, H1A) are of the FET type.

However, Thomas discloses an overcurrent protection circuit with a PTC trip endurance (Abstract) that uses bypass semiconductor switches, such as FET types (column 2, ll. 66-67). It is well known to those skilled in the art at the time the invention was made to use similar power semiconductor switching elements, such as FET's because of their simplicity in manufacturing.

Allowable Subject Matter

9. Claim 6 objected to as being dependent upon a rejected base claim 5, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Combined claim 6 would be allowable over the art of record because the prior art does not teach the semiconductor switches are of the self-locking FET type, the gate of the main semiconductor switch being connected to the source and triggered by an output of the monitoring unit via a zener diode and the gate of the auxiliary semiconductor switch being triggered directly by the same output as set forth in the claimed invention.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi et al. (US 6,381,152) discloses a

Art Unit: 2836

semiconductor switching device for outputting power and a control circuit for controlling the on/off operation of the semiconductor switching device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrence R. Willoughby whose telephone number is 571-272-2725. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

TRW
4/14/06

